UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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FEB 12 2015

REPLY TO THE ATTENTION OF:

E-19J

Cindy Bladey
Rules, Announcements, and Directives Branch
Office of Administration
Mail Stop 3WFN-06-44M
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: Draft Plant-Specific Supplement 54 to the Generic Environmental Impact Statement for the License Renewal of Byron Station, Units 1 and 2, Ogle County, Illinois - NUREG-1437 - CEQ #20140383

Dear Ms. Bladey:

The U.S. Environmental Protection Agency has reviewed the Draft Supplemental Environmental Impact Statement (EIS) for the above-mentioned project prepared by the Nuclear Regulatory Commission (NRC). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

Byron is a two-unit nuclear power plant located in Ogle County, Illinois. It began operation in February 1985 (Unit 1) and January 1987 (Unit 2). The site is located on approximately 1,782 acres, including the main site area and a right-of-way to the Rock River for the circulating water makeup intake and blowdown discharge pipelines. The nuclear reactor for each unit is a Westinghouse pressurized-water reactor producing 2,370 megawatts electric (MWe).

Byron is owned and operated by Exelon Generation Company, LLC (the applicant). The applicant applied to NRC for an extension to its operating license, extending operation for an additional 20-year period. Based on information provided by the applicant, NRC's preferred alternative is to grant the 20-year extension.

The NRC developed a Generic EIS to streamline the license renewal process based on the premise that environmental impacts of most nuclear power plant license renewals are similar. NRC develops facility-specific Supplemental EIS documents as the facilities apply for license renewal. EPA acknowledges that mitigation measures that are un-related to nuclear safety and security cannot be included in the NRC license. This includes, but is not limited to, diesel emissions reduction measures. However, because we find these measures to be value-added, we continue to recommend them to the applicant for any construction activities and include them in our comment letters. We encourage the applicant to incorporate mitigation measures into the project, wherever possible.

Based on our review of the Draft Supplemental EIS, we have rated the document and project as **EC-1, Environmental Concerns – Adequate Information**. EPA has identified additional potential mitigation measures and some areas in need of clarification. We have enclosed our ratings definitions and our detailed comments.

EPA commends NRC and the applicant on improved transparency in this document when contrasted with EISs for some other nuclear power plants that we have reviewed in recent years. We particularly note the improved compliance with plain language writing requirements. EPA found this document more easily understood, particularly for those without a technical, nuclear-related background. Reviewers also required fewer cross-references throughout the document; references often included specific locations within documents (rather than simply citing a full document). EPA encourages continued improvement by NRC on this matter.

EPA also commends NRC for specifying that certain methodologies used for risk determination meet all Federal regulation[1], particularly ones that are related, but covered independently by both EPA and NRC.

Thank you for the opportunity to comment on this document. If you have any questions or wish to discuss any aspect of this document, please contact Elizabeth Poole of my staff at 312-353-2087 or poole.elizabeth@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

cc: Lois James, U.S. Nuclear Regulatory Commission
Keith Shank, Illinois Department of Natural Resources
Kristen Lundh, U.S. Fish and Wildlife Service

Enclosure: Detailed Comments
Summary of Ratings Definitions

[1] Section 3.1.4, Radioactive Waste Management Systems, Page 3-9, Lines 44-46

U.S. EPA's Detailed Comments on Byron Station, Units 1 and 2
Draft SEIS, NUREG-1437, CEQ #20140383
February 2015

Human Health

EPA is encouraged by the inclusion of National Institute of Environmental Safety and Health's (NIESH) conclusion regarding the risks of living near extremely low-frequency electromagnetic fields[2] (ELF-EMF). However, EPA notes that NRC continues to view assignment of this issue as generically "UNCERTAIN," and therefore a Category 1 issue[3].

> **Recommendation:** We recommend categorizing this issue as a Category 2, given that chronic effects continue to be viewed as "UNCERTAIN" by the NRC, and include site-specific analysis in the Final Supplemental EIS.

Aquatic Resource

The Draft Supplemental EIS does not include a discussion of the recently finalized rule requirements for cooling water intake systems. The Illinois Environmental Protection Agency (IEPA) is the National Pollution Discharge Elimination System (NPDES) permitting authority in Illinois and will be making Best Technology Available determinations for the cooling water intake structures, if any, consistent with the Existing Facility Rule for Section 316(b) in 40 CFR Part 125, as finalized in October 2014. This determination will be effective in the first NPDES permit reissued after July 14, 2018.

> **Recommendation:** The Final EIS should include a discussion of the revised Section 316(b) regulations and potential cooling water intake technologies that may be available to the facility and whether modifications to the existing cooling water intake structure are anticipated, to the best of NRC's and the applicant's knowledge.

Threatened and Endangered Species

EPA notes that no State-listed bird species have been observed at the Byron site during the development of the wildlife management plan[4]. We also understand that surveys conducted to develop the wildlife management plan occurred in 2006. However, surveys conducted in 2006 may no longer be relevant.

> **Recommendation:** Even though actions proposed under license renewal and possible refurbishment do not appear to impact species or undisturbed habitat, EPA recommends NRC verify with U.S. Fish and Wildlife Service and Illinois Department of Natural Resource that the data used to make the determinations of no effect to state- and federally-listed species is still relevant. Results of coordination with the two agencies concerning NRC's determination of no effect should be included in the Final Supplemental EIS.

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[2] Section 4.11.1.1, Page 4-59, Lines 4-17

[3] NRC categorizes issues into either Category 1 (generic to all license renewal activities) or Category 2 (site-specific). Only Category 2 issues are analyzed in detail in Supplements to the Generic EIS for License Renewal.

[4] Section 3.6.2.3, Page 3-44, Lines 10-13

Greenhouse Gas Emissions and Climate Change

On December 18, 2014, the Council on Environmental Quality released revised draft guidance for public comment that describes how Federal departments and agencies should consider the effects of greenhouse gas (GHG) emissions and climate change in their NEPA reviews. The revised draft guidance supersedes the draft GHG and climate change guidance released by CEQ in February 2010. This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated GHG emissions, and the implications of climate change for the environmental effects of a proposed action.

Section 4.15.3 details potential GHG emissions and impacts related to climate change, concluding that GHG emissions would be lower for activities associated with license renewal than for fossil-fuel based energy production, as analyzed in the Draft Supplemental EIS.

> **Recommendation:** We recommend that the Final Supplemental EIS examine opportunities to minimize GHG emissions associated with operation of the facility to the extent feasible during the license renewal period. For example, clean energy options, such as energy efficiency and renewable energy, can be considered in the purchase of maintenance equipment, new equipment and vehicles. See also, EPA's diesel emission reduction strategies, below, for options to consider. In addition, EPA recommends that the applicant consider the need to develop adaptation measures to address impacts from climate change on the facility, such as increased intensity and frequency of storm and flood events.

Air Quality

The Draft Supplemental EIS concludes that the new build alternatives would result in any range of SMALL to LARGE[5] impacts, based on both construction and operation impacts to air quality. EPA agrees with this methodology and conclusion; however, we recommend location be incorporated in that conclusion. We note that a new build alternative could result in siting of a facility in an area with existing air quality concerns, such as non-attainment or maintenance status with the National Ambient Air Quality Standards (NAAQS) criteria pollutants.

> **Recommendation:** The Final Supplemental EIS should clarify that based on the location of the alternative (excluding the preferred alternative of license renewal), the new build alternatives could have greater than SMALL impacts based on their locations. Siting could result in selection of alternatives that have existing air quality concerns, such as non-attainment or maintenance of NAAQS criteria pollutants. This is inclusive of the magnitude of construction-related air quality impacts.

While EPA recognizes that Ogle County is an attainment area for all criteria pollutants, we expect construction equipment used during refurbishment and other onsite activities to emit diesel emissions. The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential occupational carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, asthma, and other respiratory system issues.

[5] NRC assigns impact categories either SMALL, MODERATE, or LARGE.

Recommendations: Although every construction site is unique, common actions can reduce exposure to diesel exhaust. EPA recommends that the applicant commit to the following actions during construction in the Final Supplemental EIS:

- Using low-sulfur diesel fuel (15 parts per million sulfur maximum) in construction vehicles and equipment.
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Positioning the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Using catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.
- Ventilating wherever diesel equipment operates indoors. Roof vents, open doors and windows, roof fans, or other mechanical systems help move fresh air through work areas. As buildings under construction are gradually enclosed, remember that fumes from diesel equipment operating indoors can build up to dangerous levels without adequate ventilation.
- Attaching a hose to the tailpipe of diesel vehicles running indoors and exhaust the fumes outside, where they cannot re-enter the workplace. Inspect hoses regularly for defects and damage.
- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintaining diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicates that an engine requires servicing or tuning.
- Reducing exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspection, and maintaining filtration devices.
- Purchasing new vehicles that are equipped with the most advanced emission control systems available.
- Using electric starting aids such as block heaters with older vehicles to warm the engine reduces diesel emissions.
- Using respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they wear respirators. Depending on work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit testing. Respirators must bear a NIOSH approval number. Paper masks or surgical masks should never be used without NIOSH approval numbers.

Editorial

EPA continues to recommend metrics or thresholds be included in Supplemental EISs so that differences among SMALL, MODERATE, and LARGE can be better understood; EPA is particularly interested when impacts are assigned a range (such as SMALL to MODERATE, see Table 2-2 on pages 2-26 and 2-27 for examples), what magnitude of impact or metric would move an impact from SMALL to MODERATE, and whether mitigation could be a factor to assigning a lower impact category. Without such objective thresholds or metrics, relative risks cannot be understood among the alternatives. For example, impacts to land use or visual resources from the integrated gasification combined cycle (IGCC), natural gas combined cycle (NGCC), or combined alternative (NGCC, wind, and solar) could have SMALL to MODERATE or SMALL to LARGE impacts. There is little indication of how impacts move from one impact category to the next.

> **Recommendation:** The Final Supplemental EIS should include an explanation of the threshold or metric at which an impact will increase from SMALL to MODERATE to LARGE, and whether mitigation is a factor in assigning a lower impact or range of impact categories.

EPA has identified several locations where inclusion of additional citations would improve clarity and understanding of regulatory limits. EPA is particularly interested in the sections on *Radioactive Liquid Waste Management*[6][7] and *Radioactive Gaseous Waste Management*[8]. For each of these sections, EPA recommends including 40 CFR 141, 40 CFR 142, and 40 CFR 190. In addition to Federal regulations, EPA also recommends referencing any applicable State regulatory citations.

> **Recommendation:** EPA recommends the Final Supplemental EIS include the above-mentioned citations.

Finally, EPA has identified the following minor error in the document:

- Section 3.3.1 *Meteorology and Climatology*, page 3-18, line 33, 86 ft. (139 km) needs to be changed to 86 miles (139 km).

[6] Page 3-10, lines 3 through 5
[7] Page 3-11, lines 23-26
[8] Page 3-12, lines 40-43

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment